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METHODS OF TREATING HYPERACTIVITY

by

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Methods of Treating Hyperactivity

Chapter I

Introduction

Hyperactivity has been found to occur in 3 - 8% of the American school age population. These children present a challenge to teachers and parents alike.

Although one is likely to hear or read quite a bit about hyperactivity at present, there is actually very little factual information available regarding it. It is known, for instance, that hyperactivity is much more prevalent among boys than it is among girls. It has also been found to occur most frequently among children from lower socio-economic backgrounds. The reasons for these findings are unknown, however, as is the underlying cause for hyperactivity itself, although several possible explanations have been offered.

A number of theorists say that hyperactivity is organically based (that is, that it comes from something within the child). Some of the most commonly expounded explanations in this realm attribute hyperactive behavior to prenatal problems, early fetal developmental problems and inherited behavior traits. Many experts believe that hyperactivity may be caused by a lag in the development of a specific part of the

brain or by a brain injury. This hypothesis is supported by the finding that many hyperactive children do have abnormal electroencephalogram readings.

Others believe hyperactivity may be diet-related, attributed to such factors as vitamin deficiencies, food sensitivities and allergies, low blood sugar, or lack of calcium.

Some authors think sex-linked factors may contribute to hyperactivity, because of its great preponderance among boys. There may also be a genetic predisposition to hyperactivity.

Still other theories say that the environment in which a child grows up may contribute to hyperactive behavior. It is believed by some that if a child's home or classroom environment is too permissive or chaotic, characterized by poor management and inadequate interpersonal communication, the child never learns to develop self-control. Chronic emotional stress and continuous school failure may also trigger hyperactive behavior.

A number of solutions to the problem of hyperactivity have been offered, especially within the last few years, most of them based on one of these causal explanations. But because so little is actually known about hyperactivity, the

usefulness and safety of these different methods appears to vary from study to study, and indeed, from child to child.

Purpose

It was the purpose of this paper to review the literature on the different forms of treatment now available to hyperactive children. The safety and effectiveness of each was discussed and assessed.

Definition of Terms

1. Hyperactivity. Behavior characterized by excessive distractability, impulsivity, short attention span and poor impulse control. (Note: In this paper, the terms hyperactivity and hyperkinesis were used interchangeably.)

2. Drug Therapy. The use of any chemical which, when ingested, would cause changes to occur in a person's manner or behavior, usually to enhance physical or mental welfare.

3. Placebo. A substance having no pharmacological effect but given to satisfy a patient who supposes it to be medicine; sometimes used as an experimental control in testing the efficacy of a certain medicine.

4. Behavior Management. Set of techniques designed to change one's observable behavior, in which appropriate behavior is rewarded and undesirable behavior is ignored.

Scope and Limitations

This paper was limited to research dealing primarily

with elementary school age hyperactive children. Emphasis was placed on forms of drug therapy used in treating these children. Several other forms of therapy were mentioned, although rather briefly.

The paper was also limited to research published within the last five years, with some earlier pertinent information included.

Summary

In this chaper, a brief introduction to the nature of hyperactivity has been presented.

The purpose of the paper was stated as a review of the forms of treatment available for controlling hyperactive behavior presented in current literature, with special emphasis on the safety and effectiveness of such treatment.

The terms hyperactivity, drug therapy, placebo and behavior management were defined.

The limitations of the paper were stated as research done primarily within the last five years dealing with hyperactive children of elementary school age. It was also mentioned that forms of drug therapy were especially emphasized.

Chapter II

Review of Literature

Because hyperactive children may be found in all

socioeconomic groups and in countries throughout the world, a number of solutions to this problem have been proposed.

The Use of Drug Therapy

At the present time, drug therapy seems to be the most common form of intervention used in the treatment of hyperactivity. Although some controversy has arisen in recent years over the safety and adequacy of this form of treatment, it continues to be widely utilized.

In this form of therapy, stimulant drugs, or amphetamines, are prescribed for the hyperactive child. The fact that amphetamines serve to stimulate adults and normal children, but act in the exact opposite manner on hyperactive children, remains an unexplained paradox. Yet, apparently, this is indeed what happens. Several researchers have attempted to explain the occurrence of this phenomenon. Glennon & Nason (1974), for instance, believe that hyperactive behavior is evidence of slow cortical maturation and that "these drugs stimulate the cortex to integrate behavior. The quantity of activity is actually increased as we would expect it to be. It is the 'restlessness' which is diminished. Because the child can function more fully in his thinking and responses, his behavior reverts to normal" (p. 819).

Another possible explanation of why amphetamines seem

to decrease hyperactivity is offered by Cole (1975). He believes these drugs may "slow the transmission of nerve impulses in the brain of hyperkinetic children without actually sedating the child . . . nerve impulses may be transmitted too rapidly in the hyperkinetic child, and stimulant drugs act to achieve a chemical balance, allowing the brain to function in a more normal manner" (p. 31).

Or, stated this same author, amphetamines "may stimulate the reticular activating system of the lower brain which, in turn, could result in an increase in the alertness and focused attention of the child" (Cole, 1975, p. 32).

Although none of these explanations has been proven, future research in this area may substantiate one or more of them. What is known, however, is that, whatever the reason, amphetamines have been found by many to be a successful means of controlling hyperactive behavior in children.

Ritalin (also known as methylphenidate) and Dexadrine seem to be the most commonly prescribed drugs in treating hyperkinesis. Pemoline (Cylert) is another type of stimuant drug which is also sometimes recommended, but less frequently than either Dexadrine or Ritalin.

Research Supporting the Use of Drug Therapy

A great deal of research can be found to support and recommend the use of drugs in the treatment of hyperactivity.

A number of authors believe that medication can aid hyperactive children in tolerating stress and in so doing, facilitates healthy psychological and emotional development. Others say that drugs can also help cognition, as well as enable children to attend better, which improves memory ability.

Lerer & Lerer (1977) reported, for example, on a study conducted using 27 adolescents, all of whom underwent a 60-day trial of Ritalin medication. After the trial, 16 of the 27 adolescents showed improvement in behavior, as rated by parents and teachers. The adolescents were noted to have an increased ability to attend and to concentrate. An improvement in academic achievement was also reported, in addition to a decreased level of anxiety. No ill side effects were displayed by any of the adolescents participating in the study.

Lerer & Lerer believe that these findings demonstrate a trial use of medication (they recommend 30 to 60 days) to be useful in determining the effectiveness of drug therapy for a particular child. However, it should be pointed out that no measures have been identified which could aid diagnosticians in predicting which children or adolescents would be likely to benefit positively from medication, before such medication is administered.

In a study reported by Page, Janicki, Bernstein, Curron & Michelli (1974), 238 children, ranging in age from six to twelve, were given once-daily dosages of Pemoline. Under this form of medication, improvements in behavior as measured by parents, teachers, and physicians were recorded. In addition, improvement in cognitive and perceptual functioning, as measured by (un-named) psychological tests was reported. The blood pressure and pulse rates of the children under medication remained stable, but "minimal side effects" (p. 501) were reported, the primary ones being insomnia and anorexia. Some children also complained of stomach ache, mild depression, nausea, dizziness, headache and fatigue. The author of this paper questions how "minimal" these effects may be, especially in children.

Wade (1976) reported on a study of motor performance, in which 12 normal children and 12 hyperactive children were assessed in their ability to maintain equilibrium on a square platform that rotated about a central axis. The hyperactive children were tested twice: once on medication (Ritalin) and once after having been given a placebo. It was found, according to this study, that the hyperactive children performed more like their normal peers while they

were on medication than they did when they were on the placebo. Also, it was found that the subjects were less consistent in performance while on the placebo. The author felt that these findings supported the use of medication in helping hyperactive children perform like their normal peers on motor skill tasks. He also hypothesized that medication may be useful for these children in initial motor skill learning.

Millichap (1978) reported on a study of 36 elementary school-age boys, all receiving daily doses of 10 to 20 milligrams of Ritalin for an average period of 16 months. The purpose of this study was to disclaim the theory put forth by some researchers that medication on a daily basis may have an adverse effect on children's physical growth. A distribution of the heights and weights of all the boys was recorded, and results showed no significant difference in these measurements before and after treatment. In fact, the rates of annual growth were actually found to be above average in 64% of the boys.

This shows, says Millichap, that "relatively small doses of methylphenidate (Ritalin) given intermittantly as an adjunct to remedial education are without serious toxicity and do not cause growth suppression in hyperactive children. . . Indeed, in children between 5 and 8 years and in a majority

of older school children, a stimulant effect on growth may be noted when daily doses of 10 to 20 milligrams of methylphenidate are used" (p. 570). However, Millichap advises against long-term use of medication or bigger dosages when when he goes on to say, "The prescription of larger doses on a continuous schedule is generally unnecessary and is probably inadvisable" (p. 570).

Some researchers support the use of stimulant drugs only under certain conditions. They suggest that the cause of a particular child's hyperactivity should be considered when considering the type of intervention to be used. These authors believe that children whose hyperkinesis is organically based may benefit more from medical intervention than those whose hyperactivity is environmentally caused. If the cause of the child's hyperkinesis is environmental in nature, resulting from a loosely structured or unstructured home atmosphere and inconsistent child-rearing practices, it appears that other types of intervention programs may be more beneficial.

Importance of Communication Among Physician, Teacher and Parents

Although, as has been stated, medical treatment of hyperactive children is advocated by many, its supporters

recommend a high level of communication among the prescribing doctor, the child's parents and his school. Weithorn & Ross (1975) advise, "Physicians should prescribe medication for hyperactivity only when they are satisfied that both home and school are aware of the need for relevant periodic feedback on behavior and learning and are prepared to make a commitment to provide it" (p. 460).

Doctors have been accused of prescribing drugs too readily to hyperactive children, but Sandoval, Lambert & Yandell (1976) reported on a study based on the responses of 48 physicians to an extensive questionnaire. The results showed that, while stimulant drugs were found to be the most common form of intervention prescribed, these doctors also often recommended consultation with school authorities, referrals for special education placement and psychotherapy for the hyperactive child and his family. "These findings suggest, contrary to many publicly held views, that physicians in private practice consider multiple, rather than single treatment, recommendations for hyperactive children as being most appropriate" (Sandoval, Lambert & Yandell, 1976, p. 331).

Weithorn & Ross (1975) proposed that "there should be programs for monitoring. . . behavioral consequences so that relevant information can be exchanged between the prescribing

physician and the teacher who is in a position to observe the behavioral effects of the medication" (p. 458).

These authors also conducted a survey of doctors, the results of which indicated that "the number of cases in which teacher-physician contact occurs . . . falls far short of that which could be considered adequate monitoring" (Weithorn & Ross, 1975, p. 458).

Open communication between the teacher and the school nurse is also seen as important, since the nurse may often be responsible for monitoring a child's medication in school. Based on findings from a questionnaire completed by 138 teachers and nine school nurses, Okolo, Bartlett & Shaw (1978) found that nurses were, in general, more involved in the distribution and monitoring of a hyperactive child's medication and that teachers often knew little about it. Most of the teachers questioned did indicate, however, that they thought they should have and wanted to have a larger role in the medication process. These authors felt that the teacher should be advised as to medication received by any child in his or her classroom. They also stated that he or she may be able to provide valuable feedback to the nurse regarding a medicated child, because as a rule the teacher has much more active involvement with the child than the school nurse is apt to have. "Only when school and doctor willingly

participate in a joint effort to remediate the problem of the hyperactive child will a clear and continuous model of referral and evaluation be possible" (Okolo, Bartlett & Shaw, 1978, p. 650).

Murray (1976) agreed that teachers have an advantage in being more closely involved with their students than either the child's physician or school nurse. Because the teacher is thus more familiar with the child and his behavior, Murray believed the teacher should be the individual to administer any medication to the child in school. He felt that it may also be the teacher's role to suggest medication as a form of treatment, if the teacher feels medicating the hyperactive child would lead to the enhancement of the learning atmosphere in the classroom for all concerned. However, Murray advised that other types of intervention should be tried first in the classroom; only if these fail should medication be suggested by the teacher. Once the child is actually receiving medication on a regular basis, the teacher should be especially aware of any behavioral or academic changes. All observations should be shared with the child's parents and physician.

Axelrod & Bailey (1979) offered some specific guidelines for teachers to follow if drugs are being administered to a hyperactive child at school.

First, they proposed that a copy of the doctor's prescription should be kept on file, as should a statement of the purpose for administering the drug and a form signed by the parents of the child requesting that medication be given during school.

Next, it was suggested that medication be sent to school only via a responsible adult; the child himself should not carry it. All medication should be clearly labeled and fresh and any medicine that is not going to be immediately used should not be kept in the classroom.

Axelrod & Bailey also advocated strict record-keeping regarding the actual administration of the drug. The time the drug is given, the dosage received and the name of the individual administering the medication should all be included.

Warnings Against Use of Drug Therapy

Although it has been found that medication is currently the most common means of treating hyperactivity, caution is advised by many in prescribing and administering stimulant drugs to hyperactive children.

Walker (1975) contended that the method of intervention should be based primarily on the cause of the hyperactivity evident in the child. He stated that he believes

hyperkinesis may be caused by physical problems, such as lack of oxygen to the blood due to a heart defect, a low level of glucose in the system, a lack of calcium or other dietary deficiencies. These conditions could be corrected surgically or through other types of medical intervention, claimed Walker (1975), and prescribing stimulants would merely "mask the symptoms" (p. 354) without curing the hyperactivity.

"Traumatic childhood experiences and unresolved conflicts or other psychological problems could also contribute to hyperactive behavior," wrote Walker (1975, p. 355). In this case, the child would benefit more from psychotherapy than from drug treatment. "It makes no scientific sense to suppress hyperactivity with drugs, without diagnosing medical or psychological problems" (Walker, 1975, p. 358).

Although it is generally conceded that drug therapy can have a significant effect on observable behavior in hyperactive children, including reducing activity level and distractability, decreasing disruptive behavior, and increasing ability to attend, no significant drug effects have been found on scholastic achievement (Rie, Rie, Stewart, and Ambuel, 1976; and Axelrod & Bailey, 1979). It appears that drug therapy does not improve a hyperactive child's actual learning, in terms of increasing cognitive functioning. If

the child's academic performance does improve after the prescription of stimulant medication, as is sometimes the case, this is generally believed to be attributed to the decrease of disruptive behaviors and improved ability to attend.

A number of other shortcomings related to drug prescription and supervision for hyperactive children were discussed by Neisworth, Kurtz, Ross & Madle (1976).

First, these authors state that doctors often rely too heavily on "subjective impressions of parents and teachers as a data base to assist in the formulation of a diagnosis" (p. 149). Although parents and teachers may provide valuable input, their observations and recommendations should not be the sole basis of drug prescription.

Secondly, "psychological tests of questionable reliability and validity are frequently used to identify 'soft signs' of organic dysfunction" (Neisworth, Kurtz, Ross & Madle, 1976, p. 150). It was claimed by these authors that such psychological tests offer only "highly inferential evidence of organic dysfunction" (p. 150). More accurate and reliable measures should be devised to assess any dysfunction more critically.

Neisworth, Kurtz, Ross & Madle (1976) also stated their

concern that once drugs have been prescribed for a child, the administration and treatment effects of these drugs are monitored in a haphazard manner.

These authors proposed a few minimal standards to be followed prior to the prescription of drugs. First, they recommended the "translation of the diagnosis and caretaker impressions into observable . . . school and home behaviors" (Neisworth, Kurtz, Ross & Madle, 1976, p. 150), so that drug prescription can be based on more objective, scientific grounds.

Next, they recommended the "collection of baseline data on the occurrence of the operationalized behaviors to determine in a more objective manner the severity of the syndrome in the natural environment" (Neisworth, Kurtz, Ross & Madle, 1976, p. 150).

The third step involved deciding if the situational evidence supports the clinical impressions regarding the child and his behavior, perhaps by comparing the child under consideration to others. Also, it was pointed out, this information can act as a baseline against which treatment effects can be assessed.

The final step entailed "continued data collection on the target behaviors after drug treatment has begun" (p. 150). In this way, adjustments to the needs of individual children can be made, and possible side effects related to drug usage

can also be detected.

Axelrod & Bailey (1979) also reported on possible adverse side effects connected with stimulant drug therapy. It has been found that hyperactive children subjected to long periods of medication may exhibit irritability, psychological depression, nausea, insomnia or dizziness. They may also suffer from gastrointestinal distress, fine tremors or coldness of the extremetries and they have sometimes been found to display "flat emotional responses" (Axelrod & Bailey, 1979, p. 547) when under the influence of medication.

Another concern mentioned by several authors (Axelrod & Bailey, 1979, and Cole, 1975) is the fact that children on stimulant medication often display an elevation of heart rate and blood pressure. It was suggested that these vital signs should be carefully monitored and recorded for the duration of the medication process.

Cole (1975) also found that children receiving stimulant medication sometimes exhibited a diminished appetite and loss of weight, which could result in a depression of overall physical growth.

Some authors voiced concern over the possibility that long-term dosages of stimulant drugs to hyperactive children may lead to drug dependency in later years. Glennon & Nason (1974), however, did not see much risk in this. They

believed that the vast majority of children regard medication as therapy and are willing and anxious to stop taking it.

As can be seen from the previous findings, some degree of caution is advised in the use of drug therapy in the treatment of hyperactivity, even by those who advocate it. It should also be pointed out once again, though, that there are those who strongly oppose the use of medication under any circumstances. Rie, Rie, Stewart & Ambuel (1976) stated, "Sole reliance on drugs, and uncritical acceptance of global positive evaluations of its effects by parents and teachers should be avoided . . . at all costs" (p. 321).

Problems in Evaluating Drug Therapy

The reasons for some of the controversy regarding drug use are related to some key methodological problems in the evaluation of medication. Some of these problems were listed by Adelman & Compass (1977).

The first issue mentioned dealt with subject selection in studies designed to test the effectiveness of drug therapy. For one thing, said the authors, subjects in these studies are usually referred, not selected. This may result in "a very heterogeneous group which may differ significantly with reference to a number of critical dimensions" (Adelman & Compass, 1977, p. 392). Or, said the authors, studies may

claim to sample different populations, but because of overlapping or poorly defined labels, some subjects from the same population (or even from an entirely different, unrelated group) may be used. Also, the procedures for selecting hyperactive subjects are often very subjective, relying on judgments of people who may use different criteria in making their selections.

The second problem in evaluating the effectiveness of drug therapy has to do with experimental controls, according to Adelman & Compass (1977). Included within this category were possible placebo effects (where the child showed improvement because he merely thought he was receiving actual medication) and confusing drug effects with diminished hyperactive behavior due to the passage of time.

The third methodological problem cited was that of measurement. According to Adelman & Compass (1977), accurate, systematic forms of measurement, in terms of both validity and reliability, have not yet been devised to assess behavior and gauge learning.

Because of these problems in evaluating the use of drugs in treating hyperactive children, Adelman & Compass stated that no conclusive research supporting the efficacy of stimulants as treatment for improving academic perfor-

mance, or as treatment for behavior problems, has been done. They also felt there has been no satisfactory research (either positive or negative) regarding long-term side effects. They summed up their evaluation by stating that it "remains unproven that children taking stimulant drugs manifest important positive changes over the long term (and for many not even over the short term) in their behavior at school and at home" (Adelman & Compass, 1977, p. 409).

Geographical Considerations

It is interesting to note that while much controversy still revolves around the issue of drug therapy for hyperkinetic children, the use of medication appears to be on the increase in American schools. There also seem to be some geographical factors involved in the prescription of drugs to hyperactive youngsters. Conway (1976) found, through questionnaires answered by school psychologists, that fewer children appear to be drugged in rural areas than in urban areas. In some city districts, as many as 15 to 20% of all elementary school-aged children were found to be on medication, as compared to 1 to 6½% in rural areas. Conway offered several possible explanations for these findings. Perhaps, rapidly expanding school districts, in large population centers, may be more inclined to advocate the use of drugs for controlling behavior. Then, too, the fact that most urban areas are often

places of high family mobility may contribute to greater use of drugs, since "constant relocation is one of the factors often cited by sociologists and psychologists as contributing to emotional problems, particularly among young children" (Conway, 1976, p. 442). Whatever the real reason, drugs do appear to be prescribed more extensively in densely populated areas than in rural ones.

Alternatives to Drug Therapy

Although it has been pointed out that medication is a widely used means of treating hyperactivity in children, several alternatives to drug prescription do exist.

Behavior Modification Techniques

Several authors believe that the use of strict behavior therapy can reduce hyperkinesis in children.

Stableford, Butz, Hasazi, Leitenberg & Peyser (1976) conducted a study in which they found that "behavior therapy . . . was effective in controlling hyperactive behavior" (p.302).

These authors reported on two hyperactive boys, both of whom were originally receiving dosages of stimulant drugs. Eight-year-old Fred was receiving Ritalin, which was gradually replaced with a placebo. Gregg, a 9-year-old, was phased off Dexadrine in the same way. Finally, even the placebos were discontinued, and strict behavior modification techniques,

including rating scales of behavior at home and at school and the use of contingency management procedures, were implemented with both boys. In each case, this program was successful in producing on-task and appropriate behavior.

Weissenburger & Looney (1977) also supported the use of behavior therapy in controlling hyperkinesis. They especially recommended it for the classroom setting and saw two distinct advantages in using behavior therapy, as opposed to other forms of treatment, at school. First, they claimed, using behavior management techniques could have a direct beneficial effect on classmates as well as on the hyperactive child himself, thereby improving the behavior of the entire group. Also, stated Weissenburger & Looney, behavior therapy can be used as a preventative measure, to keep inappropriate behaviors from developing and becoming established.

As has been shown, behavior therapy is viewed by many as a safe and often successful way of controlling hyperactivity. However, the main drawback in the use of this form of treatment, according to Stableford, Butz, Hasazi, Leitenberg & Peyser (1976), is that it is often difficult and time-consuming to implement. Because of this, said the authors, "it is possible that, despite the chances of adverse side effects, many parents will choose stimulant drugs over behavior therapy as the treatment of choice for their hyperactive child" (p. 311).

Diet-Related Treatment

Several researchers have linked hyperactivity to food additives such as artificial colors, flavors and preservatives. Finegold (1975 and 1977) claimed that eliminating these elements from a child's diet would improve his behavior, sometimes drastically.

It has also been stated that some children appearing hyperactive may be suffering from nutritional allergies or other diet-related deficits, such as mineral or vitamin deficiencies. If these deficits exist, they may be treated by the ingestion of megadoses of the needed nutrients. Allergies may be treated by attempting to eliminate problem foods from the child's diet.

Although nutritional therapy has been demonstrated to be beneficial in illiciting positive behavior changes in some children, it is still considered an "unproved treatment" (Adler, 1978, p. 656) and caution has been advised in its use.

Other Alternatives

Krippner (1975) reported on an alternative to drug therapy employed by Churchill School in New York City. The school offered a program for hyperactive children consisting of three major components.

First, stated Krippner, sensory-motor training was stressed, with special emphasis on language stimulation,

and the introduction of neurol patterns (such as crawling or creeping) believed to have been omitted during the child's early development.

Next, orthomolecular medicine was practiced. Mega-vitamins were prescribed for most students, based on the rationale that "large amounts of vitamins will enable the body to fulfill its requirements despite an existing disorder" (Krippner, 1975, p. 435).

The final component used by the school was an open-classroom approach to instruction, emphasizing exploration by the students. Classrooms were divided into interest areas. Contracts between student and teacher were widely utilized, with the teacher providing materials, giving assistance as needed, and recording pupil progress. In this way, stated Krippner (1975), "the hyperactivity of each child is thus channeled into constructive pursuits" (p. 436). The self-concept of the hyperactive child was also thought to be enhanced.

According to Krippner (1975), this alternative form of treatment appeared to be a very successful means of dealing with hyperkinetic behavior.

Summary

In this chapter, literature dealing with treatment forms for hyperactive children was reviewed.

It was shown that drug therapy is currently the most popular form of treating hyperkinesis, and articles supporting the use of this type of intervention were cited. The importance of open communication among parents, school and physician regarding a child receiving medication has been stressed. However, the fact that drug therapy is discouraged by some authors was also mentioned and possible dangers involved with drug use were listed. Methological problems in the evaluation of drug therapy were also discussed. Finally, geographical considerations for the use of medication with hyperactive children were mentioned.

Alternative treatments to drug therapy were also discussed, including behavior therapy, diet-related treatments and several other alternatives, such as sensory-motor training, orthomolecular medicine and open-classroom techniques for the hyperactive child in school.

Chapter III

Conclusion

After reviewing the literature dealing with hyperactivity and the methods available for treating it, this author has been able to come to several conclusions regarding this topic.

First, there is still much that needs to be learned about hyperactivity itself, including its origin and cause.

It is this author's opinion that after some of the basic questions involving hyperkinesis are answered, more clear-cut solutions to the problem may be made available.

Secondly, more research needs to be done concerning all forms of intervention currently being used with children labeled as hyperactive. Much controversy still surrounds each of the treatment forms discussed in this paper, especially drug therapy.

Another conclusion this author has come to is that a decision on the form of treatment prescribed should be a joint one, involving input from family members, school and medical personnel and possibly even the child himself. Also, this author believes that no decision regarding treatment should be viewed as permanent or static, but should be subject to review and change, based on the changing needs of the child.

Finally, it is the opinion of this author that, although some dangers may be involved, drug therapy is probably the best means of treating hyperactivity at the present time. Its biggest advantage is that it is much easier to implement than other forms of treatment and this factor alone undoubtedly contributes, at least partly, to its popularity. Although some undesirable side effects may accompany the use of drugs, these symptoms may be preferable to consistent, overt hyper-

active behavior in the home and classroom. Hopefully, careful monitoring of drug therapy can help minimize the dangers of drug intake.

Summary

In this chapter, the observations and conclusions of the author of this paper have been stated.

Several conclusions regarding hyperactivity and its various treatment forms have been drawn. First, that more research dealing with hyperkinesis and methods of treating it is needed. Also, that communication among those involved in any form of intervention is essential, so that intervention techniques may be reassessed and updated if necessary. And lastly, that at the present time, medical intervention in the form of drug therapy seems to be the most popular, most efficient, and most effective way to treat hyperactivity, although caution is advised in its use.

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